Faculty of Cognitive Sciences and Human Development

THE DEVELOPMENT AND EVALUATION OF ONLINE COURSE REGISTRATION MODULE SYSTEM (OCREMS) IN UNIMAS

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THE DEVELOPMENT AND EVALUATION OF ONLINE COURSE REGISTRATION MODULE SYSTEM (OCREMS) IN UNIMAS

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This project is submitted in partial fulfillment of the requirements for a
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Statement of Originality

The work described in this Final Year Project, entitled
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BSU	Ball State University
CICTS	Centre for Information & Communication Technology Services
CSCW	Courseware Computer Sciences System
EFT	Electronic Fund Transfer
HCI	Human-Computer Interaction
IBM	International Business Machines
IC	Identification Certificate
LMS	Learning Management System
OCREMS	Online Course Registration Module
PHP	Hypertext Preprocessor
RAD	Rapid Application Prototype
SMP	Sistem Maklumat Pelajar
UCD	User Centered Design
UNIMAS	Universiti Malaysia Sarawak

LIST OF APPENDIX

ABSTRAK

PEMBANGUNAN DAN PENILAIAN SISTEM MODUL PENDAFTARAN KURSUS (OCREMS) SECARA DALAM TALIAN DI UNIMAS

Ahmad Zuhairy B. Hashim

Kajian ini bertujuan untuk membangun dan menilai tahap kebolehgunaan antaramuka sistem modul pendaftaran kursus secara dalam talian. Ciri-ciri kebolehgunaan yang diuji adalah kejelasan status sistem, kesesuaian sistem diantara keadaan sebenar, kawalan dan kebebasan pengguna, pencegah kesalahan dan pertolongan dan dokumentasi. Seramai 35 orang pelajar di UNIMAS terlibat sebagai responden untuk menguji sistem ini. 5 orang dari setiap fakulti dipilih secara rawak kecuali fakulti dari perubatan tidak terlibat dalam pengujian ini. Instrumen yang digunakan di dalam kajian ialah komputer peribadi, soalan kaji-selidik dan sistem OCREMS. Kaedah penilaian Heuristik telah digunakan dalam mendapatkan data. Hasil kajian menunjukkan sistem OCREMS memenuhi kelima-lima ciri kebolehgunaan yang diuji. Kesimpulan daripada kajian ini, SMP tidak mempunyai tahap kebolehgunaan yang optimum.

ABSTRACT

THE DEVELOPMENT AND EVALUATION OF ONLINE COURSE REGISTRATION MODULE SYSTEM (OCREMS) IN UNIMAS

Ahmad Zuhairy B. Hashim

The propose of this research is to develop and to test the online course registration module system in term of interface design usability. The usability criteria tested in this research includes the visibility of system status, the match between system and real world, the user control and freedom, the error prevention and the help and documentation criteria. There were 35 students in UNIMAS involved as the respondents to test the system. 5 students were randomly selected as respondents in each faculty except Faculty of Medical. This research uses instruments such as personal computer, questionnaire and OCREMS system. Heuristic evaluation method is used in order to collect the data. The finding of this research shows that the OCREMS have fulfilled all the five usability criteria compared to SMP that only two out of five usability criteria. From the research, it can be concluded that SMP did not have optimum usability level.

CHAPTER 1
INTRODUCTION

1.0 Introduction

Advanced systems and high technologies are rapidly developed for the past 50 years. This can be seen through various uses of system interfaces, web pages software systems that enable user to solve complicated problems easily. However, most of the systems developed are not up to the level of human comfort. Good systems are systems that are able to interact with the user and offer solutions to problems. But, better systems are system that is developed based on the way human want it to be seen and behave. Thus, it means that the system is usable and visible to the user view.

One of the main factors that contribute to the usability of the system is the design of the user's interface. Bad design of the system can lead to frustration and stress for the users. Therefore, each system should have good quality of interface design in the system.

According to Preece, Rodger & Sharp (2002), generally, usability is used to ensure that certain products are interactive, easy to learn and efficient. Sistem Maklumat Pelajar (SMP) has quite a weak interface that need to be improved.

Universiti Malaysia Sarawak (UNIMAS) is one of the local universities in Malaysia that used this application for the students course registration.

Sistem Maklumat Pelajar (SMP) involves two sets of users. One is the student and the others is the staff from registration department. The main purpose of the system is to enable students to register and drop the courses easily without the use of filling various forms. Students can easily re-check the courses that they have registered in the click of a finger and prevent them from registering courses exceeding the total credit hour limit. The staff is also able to check the students and courses information efficiently and systematically.

The Online Course Registration Module System (OCREMS) involves two sets of users which is similar to SMP. The users are the student and the registration department staff. The proposed system is more usable in term of accessibility. It provides online registration module and suggest online payment prototype for the module. The students can easily make payment through this system without physically going to the particular place.

Nevertheless, the development of Sistem Maklumat Pelajar (SMP) is still weak in terms of the design of the user interface and its accessibility. This simple problem might weaken the flow of the system and lead to reduce operation performance.

1.1 Background of the study

1.1.1 Usability

Usability can be considered as the bench mark for the users when they are using that certain products, be it a system or a website. Usability hold quite a number of meanings and this depends on the particular person to how he is going to interpret the meaning. According to Nielson (1994), usability is a very

important component in the system although there are other elements which contribute to the system in achieving its goal.

There are five chareteristics in usability which are learnability, users' understanding, memorability, minimal errors and users' satisfaction. Usability is also used as the key concept for human-computer interaction design. For example, user-centered design is used as a process to develop a user-friendly system (Preece et. al., 1994).

The particular statement is supported by Nielson (2000) and Powell (2002) whereby the quality of a system is measured based on the usability elements used. The applied method is able to help in the development of a system easily.

The examples of the five characteristics are as the following:

i. Learnability
   Is it easy for the first time user to use the system?

ii. Users' understanding
   Is the user able to use the system easily again say that they have used the system before.

iii. Memorability
   Is user able to use the system easily say that they didn't use the system for quite a long time?

iv. Minimal errors
   How many errors are done and how the users prevent themselves from doing so?

v. Satisfaction
   Is the user satisfied when they are using the system?

All five characteristics mentioned above is applied in developing the new system. According to Frokjaer, Hertzum & Hornbaek (2000), effectiveness served as to achieve the goal of the system. The goal of the system is achieved if the course registering system is provided and the users are able to register their subjects. Users' understanding helps in the operation of the system and ensure the system to run smoothly. Satisfaction enable the users to use the system easily.

According to Plaisant & Shneiderman (2004), ISO 9241 focused on the three main objectives of usability which are effectiveness, users' understanding and achievement. However, the objectives are more focused on the practical evaluation. The particular practical evaluation is the amount of time for users in learning on how to use the system or how long the users try to solve certain problems.

As a conclusion, usability is a very important element in developing a website because it enables users to use the system easily. Usability is about developing a good website whereby it focus on the user cognitive abilities which enables designers to develop a better version of website based on the user itself.

1.2 Design Process

Design process is a stage-by-stage process in designing a certain product. The steps involve are knowing what to do, knowing what is desired by the user and put in a unique touch of style on the website (Nicole & Abascal, 2001).

The designing process is very essential in developing OCREMS as it ensures the specific design required by the students which are the main user of the system.

1.2.1 User-Centered Design (UCD)

The user-centered design is used in every stage of developing the website (Darlington, 2005). It is served to achieve the needs and limitation of the user which is the students who are the main user of the website. The user-centered design is divided into four stages. The first stage is the user's request in a particular website. It is very essential to understand the user's requests which are the student since they are the main user of the system. Normally, web designers will have trouble in designing a certain website when they are not focusing on the user. This is because users will take a longer time to use the system as it is designed only based on the designer's perspective.

1.2.2 Rapid Application Development (RAD)

Based on Martin (2000), Rapid Application Development (RAD) is a development lifecycle considered to give much quicker development and high quality results than those achieved with the conventional lifecycle.

It is designed to take the minimum advantage of powerful development software that has evolved recently.

1.3 Problem Statement

1.3.1 Accessibility

Nowadays, popular and well-established online web based application systems have higher demand especially among the university students. Student is anxious to access and join online web based systems due to the current situation where the Internet is so popular among students. Sistem Maklumat Pelajar (SMP) lack this particular quality. The system is indeed using online system, but the function stops there.

We have found out that students have problems when they are sitting for the final examination. Examination slip is issued to students before they are going for the examination. However, students who have not made their fee payment are banned from getting the slips. How can the students check on the payment debt easily without going all the way to the Financial Department? This is the question that the study would be able to solve for us.

Some students have problems to register the minor course because the system did not showed the scheduled time about the course. This can makes time scheduling clashed with other courses.

1.3.2 User Interface

Based on the user interface of the current system, there are few minor weakness which is found. The weaknesses are as the following:

i. The button of "*Simpan/Keluar*" is confusing as it has two different functions for the button.

ii. Information access cost makes the display of the system a bit crowded and troublesome for the user. This is so because both of the matrix number and IC number that need to be filled before registration are unique. The use of one primary key is enough for one system.

iii. The buttons for "*Pendaftaran kursus*" and "*Cetakan laser*" are too close to each other in the main page. Users are most likely to press on the wrong button most of the time.

iv. New users do not know how to get to the option of courses as there is no label that displays the function of "*F9*".

These weaknesses may seem to be a normal and minor problem of the user interface. However, these weaknesses could develop into negative emotion when user is using the system. User is a human being that is mostly controlled by their emotion and desire to use products efficiently and systematically.

1.4 Objective of Study

Objectives of this research can be divided into two objectives which are general objective that focus on the general objective and the specific objective. The general objective refers to the overall goal of the study. The specific objective defines the research specific motive.

1.4.1 General Objective

The purpose of the study is to develop a web based application for course registration module and online fee payment prototype.

1.4.2 Specific Objective

i. To develop a new system which focus on the design of graphical userinterface based on Human-Computer Interaction (HCI).

ii. To test the system in term of usability in Usability Testing.

iii. To develop an online fee payment prototype which linked to the Online Course Registration web base.

1.5 Significant of Study

Online Course Registration Module System (OCREMS) will give benefit for both students and the staff from the registration department. It allows easy and faster data access with the systematic organization. Through this system,

responsible staffs would be able to access the database and update the inventory via the Internet. It also reduce data redundancy and the risk of human error. Thus, manipulation of data can be done at maximum speed.

The development of the new system will improve the graphical interface where the needs of the user is set to achieve the maximum and optimum understanding. The usability testing that will be carried out help in ensuring the system to operate smoothly in order to fulfill the user needs.

The design and the development of the Online Course Registration Module System(OCREMS) will provide acts of referrence in the future for the Centre for Information & Communication Technology Services (CICTS) and UNIMAS.

1.6 Scope of the Project

The scope of Online Course Registration Module System (OCREMS) will be an incorporated user-profile processing system that features the registration and allow authorized access. It contains information about the student's profile, course registration module and fee payment all in one web. The module details involved in Online Course Registration Module System (OCREMS) are listed in Table 1: